

Computer Aided Drafting

Course Code: 21107

Rationale Statement:

Computer Aided Drafting allows people with careers in design and pre-construction create our future. They turn a concept into a set of plans whether it is a component, a system, or a building. Their plans guide other construction or manufacturing professionals as they continue the building process. Students use Computer Aided Drafting software used by a skilled draftsman or engineers.

Suggested Grade Level: 10-12

Topics Covered:

- CAD Basic Operations
- Illustrate layers
- Create blocks and attributes
- 3D drawings
- Orthographic projections
- Drawing and Plotting drawings to scale
- Math and Reading skills

Core Technical Standards & Examples

Indicator #1 Apply design principles of CAD	
Bloom's Taxonomy Level	Standard and Examples
Understanding	<p>CAD1.1. Identify technical design applications of CAD</p> <p>Examples:</p> <ul style="list-style-type: none"> • Describe benefits of design using CAD • Describe factors that should be included in selecting technical drafting software • Compare various technical drawings from assorted CAD software
Applying	<p>CAD1.2. Apply preferences to set up a drawing in CAD</p> <p>Examples:</p> <ul style="list-style-type: none"> • Modify the workspace for individual users • Organize files for easy folder navigation • Set up grids and coordinates for assigned projects
Applying	<p>CAD1.3. Use proper CAD terminology.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Prepare a report about the area of study • Design a questionnaire to for an interview • Write a biography about a historic person in the field

Indicator #2 Apply computer skills to develop technical 2-D drawings	
Bloom's Taxonomy Level	Standard and Examples
Applying	CAD2.1. Apply multi-view and orthographic projections Examples: <ul style="list-style-type: none"> • Design top, front, and right side views of an object • Integrate proper dimensioning techniques on a 2-D drawing • Formulate the number of views needed to fully describe an object
Applying	CAD2.2. Illustrate layers with appropriate characteristics Examples: <ul style="list-style-type: none"> • Apply layers to a map or plot plan • Classify blocks or symbols to independent layers • Complete drawing features using various layer colors and line types
Understanding	CAD2.3. Define dimensioning styles and techniques on metric and imperial drawings Examples: <ul style="list-style-type: none"> • Label measurements, notes, and symbols to orthographic views • Identify <i>American National Standards Institute</i> standards for dimensioning and notes • Show drawing using metric units
Applying	CAD2.4. Create blocks and assign attributes to various projects Examples: <ul style="list-style-type: none"> • Integrate various symbols used on an architectural or technical drawing • Compose a title block with assigned attributes • Rearrange and edit attributes of developed blocks
Applying	CAD2.5. Illustrate isometric and pictorial drawings Examples: <ul style="list-style-type: none"> • Show renderings on a pictorial drawing • Complete an isometric from a multi-view drawing • Rearrange attributes of multi-view drawing

Indicator #3 Apply computer skills to produce technical 3-D drawings	
Bloom's Taxonomy Level	Standard and Examples
Creating	<p>CAD3.1. Create 3-D drawings using CAD</p> <p>Examples:</p> <ul style="list-style-type: none"> • Complete a basic 3-D solid of various geometric shapes • Illustrate 2-D projections of a 3-D object • Apply poly-lines to develop 3-D solid

Indicator #4 Produce final technical plans through various printing techniques	
Bloom's Taxonomy Level	Standard and Examples
Creating	<p>CAD4.1. Create drawings to scale</p> <p>Examples:</p> <ul style="list-style-type: none"> • Modify and plot drawings using all <i>American National Standards Institute</i> standard media • Formulate various line weights using pen assignments • Create a 3-D solid model on a 3-D printer